

Claims

1. A thermostatic mixing valve including a valve body having a first fluid inlet, a second fluid inlet and a fluid outlet, a mixing chamber located between the respective fluid inlets and the fluid outlet, a thermostatic element located in or adjacent to the mixing chamber, a piston arranged for movement within the valve body in response to the thermostatic element, said piston arranged to throttle the flow of the first fluid into the mixing chamber by varying its position relative to a first fluid seat, said piston also arranged to throttle the flow of the second fluid into the mixing chamber by varying its position relative to a second fluid seat and wherein the second fluid seat is configured to allow for movement of the piston as a result of continued expansion of the thermostatic element.
2. A thermostatic mixing valve according to claim 1 wherein the second fluid seat is formed as an elongate portion extending in the direction of the movement of the piston so as to allow the piston to slide along the elongate portion to thereby allow for continued expansion of the thermostatic element.
3. A thermostatic mixing valve according to claim 2 wherein the elongate portion is formed on the valve body.
4. A thermostatic mixing valve according to claim 3 wherein an outer peripheral wall of the piston slides along the elongate portion.
5. A thermostatic mixing valve according to claim 2 wherein the elongate portion is formed on a member located within the valve body.
6. A thermostatic mixing valve according to claim 5 wherein an inner peripheral wall of the piston slides along the elongate portion.
7. A thermostatic mixing valve according to any one of the preceding claims wherein the first fluid seat is formed in a portion of the valve body.

8. A thermostatic mixing valve according to any one of the preceding claims further including an adjustment mechanism for adjusting a rest position of the thermostatic element.
- 5 9. A thermostatic mixing valve according to claim 8 wherein the adjustment mechanism is arranged to adjust the positioning of the thermostatic element relative to the piston so that a set temperature of the fluid through the fluid outlet can be varied.
- 10 10. A thermostatic mixing valve according to claim 4 wherein the piston includes a socket for engaging with the thermostatic element.
11. A thermostatic mixing valve according to any one of the preceding claims further including a mixing tube arranged to direct the flow of first and second fluids onto the thermostatic element.
- 15 12. A thermostatic mixing valve according to claim 11 wherein the mixing tube is configured to seat a trailing end of the thermostatic element.
- 20 13. A thermostatic mixing valve according to claim 12 wherein a leading end of the thermostatic element is arranged to contact a portion of the piston.
14. A thermostatic mixing valve according to any one of claims 11 to 13 wherein the adjustment mechanism includes a thread arrangement formed on 25 the periphery of the mixing tube which is arranged to engage with a thread formed in the sidewall of the mixing chamber so that the mixing tube's positioning within the mixing chamber can be adjusted relative to the piston by rotating the mixing tube.
- 30 15. A thermostatic mixing valve according to any one of claims 11 to 13 wherein the adjustment mechanism includes means for varying the size of the mixing tube so that it can be located in one of a series of seats formed in the

sidewall of the mixing chamber thereby adjusting the positioning of the mixing tube relative to the piston.

16. A thermostatic mixing valve according to any one of claims 8 to 10  
5 wherein the adjustment mechanism includes an adjustment pin configured so that an inner portion of the pin is in contact with a trailing end of the thermostatic element.

17. A thermostatic mixing valve according to claim 16 wherein the  
10 adjustment pin includes an outer end which is accessible from the outside of the valve body thereby enabling movement of the pin which results in an adjustment in the positioning of the thermostatic element relative to the piston.

18. A thermostatic mixing valve according to claim 16 or claim 17 wherein  
15 the adjustment pin is threadedly connected to the valve body of the thermostatic mixing valve.

19. A thermostatic mixing valve according to any one of the preceding claims  
further including a check valve mounted adjacent each of the hot and cold fluid  
20 inlets to prevent back flow of fluid through the respective inlets.

20. A thermostatic mixing valve according to any one of the preceding claims  
wherein the first fluid inlet is a cold fluid inlet and the second fluid inlet is a hot  
fluid inlet.

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21. A method of adjusting the temperature of an outlet fluid through a  
thermostatic valve, said thermostatic valve including a valve body having a first  
fluid inlet, a second fluid inlet and a fluid outlet, a mixing chamber located  
between the respective fluid inlets and the fluid outlet, a piston arranged to  
30 regulate the flow of the first and second fluids from their respective inlets into  
the mixing chamber, a thermostatic element located in or adjacent to the mixing  
chamber and an adjustment mechanism for adjusting the rest positioning of the  
thermostatic element relative to the piston, said method including the step of

adjusting the adjustment mechanism so as to adjust the rest position of the thermostatic element relative to the piston to thereby change the flow of the first and second fluids into the mixing chamber until the temperature of the outlet fluid through the fluid outlet is at a desired set temperature.

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22. A thermostatic mixing valve including a valve body having a first fluid inlet, a second fluid inlet and a fluid outlet, a mixing chamber located between the respective fluid inlets and the fluid outlet, a piston arranged to regulate the flow of the first and second fluids from their respective inlets into the mixing 10 chamber, a thermostatic element located in or adjacent to the mixing chamber and an adjustment mechanism for adjusting a rest position of the thermostatic element.

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